LeMonnier (Y. R.)

Box 10

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ERYSIPELAS:

ITS TREATMENT WITH SULPHATE OF QUININE.

Box 10.

BY

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From "The New Orleans Medical and Surgical Journal," November, 1874.

Jas. A. Gresham, Print, 92 Camp Street, N. O.

THE

NEW ORLEANS

MEDICAL AND SURGICAL JOURNAL.

NOVEMBER, 1874.

ORIGINAL COMMUNICATIONS.

ARTICLE I. *Erysipelas; Its Treatment with Sulphate of Quinine.* By Y. R. LEMONNIER, M.D., Visiting Surgeon Charity Hospital, New Orleans; Member N. O. Medical and Surgical Association.

The term erysipelas is a Greek one, signifying a tendency to spread. It is an exanthematous disease, characterized by an eruption *sui generis.* "Erysipelas," says Dr. Gross, "is not only a frequent but a most formidable disease. Produced by various causes, both local and constitutional, it may exist as a primary affection, or occur as a complication of other lesions, modifying their character, interfering with their evolution, and even at times entirely supplanting them."

The disease is said to be idiopathic if it depends on some constitutional vice, or traumatic if it be associated with an external injury. It occurs at all ages, and in both sexes. Whether or not temperament exerts any influence upon its production is as yet unknown. "Nervous, irritable, and intemperate persons," says Dr. Gross, "are particularly subject to it." Judging from the number of "*alcoholics*" among the observations which follow, I conclude that alcoholism might be looked upon as predisposing to the disease. I did not notice any tendency on the part of the nervous and irritable temperaments to influence the march of the disease. Case No. 10, in which the exanthema seemed to be

most persistent, and where it will be seen to have returned at three different times, was a man of remarkable phlegmatic temperament.

Erysipelas prevailed in my ward epidemically for five months, during which time I was not a day without one or more cases. I have been often obliged to postpone all operations in which delay was admissible, for fear of giving rise to it. The smallest scratch was often the starting point, bringing on an attack which was more or less severe, and in fact, fatal in one instance (Case 12).

Apart from the cases in which alcoholism seemed to be a predisposing cause, I cannot account for the other cases in any other way, except by a vitiated state of the atmosphere of the hospital, which, during the whole winter, had not been without erysipelas in some of its wards. This had caused me to anticipate the distemper, for several months before it made its appearance in my ward. It will not be amiss here to state that, whereas my colleagues had erysipelas among their patients, I had pyæmia among mine. Of the latter disease I had three cases, closely following each other, in beds adjoining each other. Two of these died and one recovered. Those who had pyæmia did not have erysipelas, *et vice versa.* Once the latter had made its appearance, the former disappeared.

My object here is not to write a treatise on erysipelas, but an essay "*on its treatment with sulphate of quinine,*" stating what, in my opinion, is the modus operandi of this drug in this disease. The theories here put forth are based on recent experiments and discoveries made by different authors. The result of this treatment is, twelve cases, ~~with~~ eleven cures and one death.

Among the many theories concerning the pathology of erysipelas, one in particular has attracted my attention as probably the most correct. It is the one which considers the infiltration of the skin of erysipelatous parts, by the white corpuscles of the blood, as being the probable cause of the disease. Upon this is based the quinine treatment. In 1868, M. Vulpian, and after him, Koster, Volkmann, and Studener, reported, as the result of their investigations, the presence of a large amount of white blood globules, infiltrated in the thickened tissues of the skin of erysipelatous parts. M. Vulpian (Archives de Physiologie, 1868, p. 316.), says: "In thin slices of the skin which have macerated in alcohol, it is easy to recognize a thickening of the tissue, and the presence of

a large number of leucocytes. They are so numerous, that in many places they are contiguous to each other. In slices that are not very thin, the greater portion of the dermic fibre is hidden by them. They are disseminated throughout the thickness of the skin, being more numerous in the papillary layer and its neighborhood than in the deeper portions. These leucocytes are not to be found, except in very rare instances, in the subcutaneous cellular tissue. I am satisfied that they are colorless globules, from their similarity to those of the blood and pus, and from their form and their dimensions. Also from the result of the action of acetic acid, which caused them to fade, and show the presence of 1, 2 or 3 small nucleoli with distinct borders."

On the 25th of last April, I examined the liquid contained in the phlyctenæ of erysipelas (Case 3), and found it to be composed of a large amount of white corpuscles. Not a single red one was to be seen.

It would seem that these globules are rapidly absorbed, and disappear, since 2 or 3 days after the disappearance of the exanthema they are not to be found.*

Such, therefore, are the facts as seen with the microscope. But to what is due this great accumulation of leucocytes is the next and more difficult problem to be solved. Many theories are brought to bear on this point. But theories must do when we cannot do better, yet they only serve to hide our ignorance. The facts reported by Waller, of London, in *Philosophical Magazine*, in 1846; those of Conheim, of Berlin, relating to the transudation of the white corpuscles of the blood through the parietes of their blood-vessels, were disbelieved. M. Vulpian himself, while writing the result of his microscopical examinations, did not then (1868) know how to account for it, and rejected the theory of Waller and Conheim. Further on he says, "*Cependant il y avait quelques leucocytes dans la paroi de certains vaisseaux; mais assurément c'était là une exception*" (And yet there were a few leucocytes in the parietes of certain vessels; but assuredly this was an exception). He finishes his article thus: "On a cherché à voir si l'on ne pourrait pas, dans ce cas, reconaître le mode d'origine des leucocytes, disséminés, en si grand nombre, dans le derme; mais on n'a pu arriver à se former les préparations sous les yeux, ancune idée nette sur ce sujet" (In vain we tried to account, in this case, for the origin of the leucocytes, dissemi-

*Perroud, *Annals de Dermatologie and de Syphiligraphie*, 1869-70, p. 242.

nated, in such great number, in the dermic tissue. With the preparations under our eyes we could obtain no satisfactory result). Such was his language in March, 1868. But since then, new facts were made known, those of Stricker, in 1867,* Prussack, of Vienna, etc., confirming the conclusions of Waller and Conheim. Finally, in 1870, we find M.M. Vulpian and Hayem† reading before the Académie de Médecine of Paris a paper on this subject, supporting the views of these authors. Among the French micrographers, Lortet,‡ and Ranvier,‖ had already entertained the same views.

The transudation of the white corpuscles of the blood, through the parietes of their blood-vessels, is now a recognized fact, and it is admitted by many, that it is solely to this transudation that is due the formation of pus.

Physiology has long ago taught us that, the white corpuscles of the blood were endowed with a movement, *sui generis*, called *amœboid movement.* Lortet has proven that it was due to it, that the white corpuscles transuded through the parietes of their vessels.

The transudation being known, as also its cause, the question now is, how to stop it. If we know not what the intimate cause of erysipelas is, let us at least deduct from its pathology, if we can, a treatment. Such is the object of this paper.

From the learned researches of authors, and in particular those of Dr. Binz,§ we have been taught that quinine had the power of stopping the amœboid movement of the white corpuscles of the blood. It was with the *neutral muriate of quinine* that the doctor made his experiments, as it is the most soluble of the quinine salts, dissolving in 60 times its volume of water. The object of those researches was to prove that quinine possessed *antiseptic* properties. Admitting that the works of MM. Schultze, Schwann, Pasteur, and many others, are correct, he admits, *a priori*, that the animalcules developed in putrefied liquids are the cause of the chemical modifications which take place in these liquids. In proving the powerful toxic effect of quinine on the inferior organisms, he has established the antiseptic properties of this drug.

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* Journal de l'Anatomie et de la Physiologie de Robin, 1867.

† Academie de Medecine, seance du 15 fevrier, 1870

‡ Lortet—Annales de la Societie des Sciences Medicales de Lyon, 1868.

‖ Ranvier—Comptes rendus de la Societie de Biologie, 1868.

§ Experimentelle Untersuchungen uber das Wesen der Chininwirckung, von Dr. C. Binz (Experimental Researches on the modus operandi of Quinine, by Dr. Binz, in *Archives de Physiologie*, 1868, p, 747.

In order to obtain better results, he first experimented on (microscopically speaking) infusoriæ of a colossal size, namely, the paramecia and the colpoda, which are to be found in vegetable infusions. Later, it was discovered that the vibrios and bacteria were also destroyed by quinine.

A solution of muriate of quinine, one part to 800 of water, instantly kills the voluminous infusoriæ. One part to 2000 kills them in a few minutes, and one part to 20,000 in a few hours. Such is the special action of quinine, which the other vegetable alkaloids do not possess to the same degree. A solution of salicine, of one part to forty of water, has no visible action on these animalcules. Muriate of morphine, one part to 120 of water, does not kill them completely in the space of one hour. Nitrate of strychnia, one part to 200 of water, only acts after a contact of a few minutes.

Among the reagents which do not possess corrosive properties, hypermanganate of potash alone seems, in this respect, to be more powerful than quinine. Of the active chemical substances, the salts of copper and zinc, and also creosote, have a less energetic action. Bichloride of mercury alone seems to be equal to quinine.

Among the smaller infusoriæ, the vibrios, spirilla, bacteria, are liable to the same results as the paramecia and colpoda. The monads seem to offer a greater resistance to the effects of the poison. In concluding, Dr. Binz says: "A solution of quinine sufficiently concentrated has a marked antiputrid action, and surpasses in this respect a number of substances whose conservative powers have long since been recognized." Here I fully agree with this distinguished physiologist, as I have often had the occasion of verifying this antiputrescent power of quinine.

As regards the antiphlogistic properties of this drug, we shall see to what conclusions Dr. Binz comes, from the results of the researches above mentioned.

"The spontaneous movements of the white blood corpuscles were first mentioned by Lieberkühn, and later by Schultze. If to perfectly pure serum be added a drop of blood, taken from an animal in full digestion, we shall see the amœboid movements. Let this experiment be repeated with serum containing $\frac{1}{2000}$ part of quinine, and we shall see the movements of the white corpuscles stopped, whereas the red ones have not in the least been affected.

"Two young cats having taken each half an ounce of milk, one of them received several subcutaneous injections of quinine. Their blood was afterwards examined with the microscope. The white globules were seen to be greatly diminished in the blood of the one which had received the injection of the quinine. Before the experiment, this animal showed a larger amount of white globules than the other (294 against 214); after the experiment he had *twenty times less* (17 against 344)."

From this effect of quinine on the white corpuscles, the doctor concludes that quinine is an antiphlogistic. He admits with Conheim, that in the majority of cases, inflammation is not characterized by a proliferation of the elements of the conjunctival tissue, but by an increase in the number of the leucocytes, and their issue through the vascular parietes, to scatter themselves in the surrounding tissues. Viewing things in this light, it is easy to understand the action of quinine on inflamed parts. From the numerous experiments, made especially on the batracians, and reported in the paper of Dr. Sebarrenbroich, Dr. Binz affirms that, subcutaneous injections of quinine delay the development of inflammations, and when their effects have had time to show themselves, cause them (the inflammations) to disappear.

If quinine acts so powerfully against inflammatory affections, such as pyæmia, etc., how is it that we do not always obtain a success? To this Dr. Binz answers as follows: "This is due to two principal causes. First, the doses given are not large enough. To prescribe efficaciously against the progress of a peritonitis, in a subject weighing 150 lbs (the dose of the drug should evidently be in proportion to the mass of the individual) we must give from 12 *to* 15 *grammes of quinine* (3 to 3¾ drams) in 24 hours.

"Second, it frequently happens that a large portion of the drug is not absorbed. This is what often happens when we make use of the sub-sulphate (or neutral sulphate) of quinine. This powder is often inert, and goes through the bowels without being absorbed." For this last reason the author hopes that the muriate of quinine—a soluble salt, *par excellence*—will substitute the sulphate in daily practice.

I believe that practitioners have exaggerated the fears of large doses of quinine, but yet I do not, for the present, advocate such large doses as advised by Dr. Binz, i. e., in proportion to the weight of the individual. As to the second clause, the non-

absorption of the drug, all practitioners have had occasions to regret this.

The great solubility of the muriate of quinine, and its easy introduction into the system by subcutaneous injection, should be a sufficient reason to give it the preference. Not only the chances for non-absorption by this method are less than by any other, but its action is more rapid.

Concerning the doses of quinine, it will be seen that I gave 2 grains every hour, then every 2 hours, 3 hours, and 3 times daily. The patients, except in a few instances, never taking their medicine regularly, which decreases the supposed dose of the kinick salt taken in the 24 hours. Others have prescribed with satisfaction the sulphate quinine in this disease, in doses of 6 or 8 grains in the 24 hours. Dr. Binz, no doubt, according to his theories, would have prescribed larger ones than I have.

Sum toto, this proves that the quinine is paramount, and the dose secondary. It is only by comparative statistics that we can know what is the proper quantity to be given.

Another point of great interest is to continue the administration of the remedy for several days, say one week, after all traces of the erysipelas have disappeared. If this rule is not strictly adhered to, relapses are most frequent (Cases 8 and 10).

Few of the cases reported, as will be seen, have suffered from secondary abscesses, and in those who have, the abscesses have been insignificant.

But one case proved fatal, and it was one of traumatic erysipelas of the foot. I have had to contend against no serious accident in those whose head was affected by the disease. No brain symptoms of any kind, though in one case, where the head and face were affected, there were three relapses.

Quinine was given as soon as the first symptom, initiatory chill or *rapid rise of temperature*, showed itself. In some cases the drug was prescribed before the appearance of the eruption.

Except the case which terminated fatally, none offered those alarming symptoms which we so often have to battle against in the cases entering hospital in an advanced stage of the disease, in which no treatment, or an improper one, has been instituted prior to their admittance. No delirium, or if any, a very light one; no ataxo-adynamic symptoms; not even any tendency to deep seated abscesses. I was told by my colleague of the hos-

pital, Dr. S. Logan, that several of his cases had either had some deep seated abscesses or presented a tendency to their formation.

Are these mild symptoms in the majority of my cases to be attributed to the treatment employed, quinine? I think so. I am not prepared to say whether quinine possesses a marked superiority over all other methods of treatment in this disease, as I have not inquired into the *modus curandi* of my colleagues at the hospital, but I may say, that in the hands of Dr. Perroud,* of the the Hotel Dieu de Lyon, as also in mine, it has proved most valuable.

Except a purgative now and then, when a marked saburral state of the tongue existed, or in cases accompanied with constipation, the kinick salt was the only treatment. Where the local heat was very great (as in Case 12), an evaporating lotion was prescribed, which was cooling and agreeable to the patient. Anything else that might have been ordered were placebos, calculated to quiet the patient's mind, and not with any hope of a curative effect. I have little or no faith in the topical treatment, and depend on the constitutional one for a cure or alleviation.

In several instances, it will be seen that I prescribed collodion *loco dolenti*. It was with a view of testing the abortive power of this topical agent in erysipelas. Dr. Paul Broca, Chîrurgîen des Hopitaux de Paris, strongly recommends it, and recognizes its power in arresting the march of the exanthema when properly applied. Dr. B. is a high authority, and whatever he recommends deserves a trial. His method is to surround the affected parts, say half an inch beyond the line of demarcation, with a band of collodion, which, if properly kept up, will prevent the spread of the eruption. I have applied this method according to directions, and as I have seen it employed, in Paris, by M. Broca himself, and am sorry to say that, in every instance, the result has been a negative one. Why is this? The Parisian surgeon reports cases of success. It does not behoove me, a young surgeon, to criticise the results of my former and time-honored teacher of the hospitals of Paris. Perhaps on a future occasion, with a more extensive experience, I will be better able to put forth an opinion.

Twelve cases of erysipelas are reported, which are divided as follows: Idiopathic 2, Traumatic 10. They are subdivided as

* Loc. cit.

follows: Erysipelas of the face and head 5, trunk 4, superior extremities 1, inferior extremities 2. The diatheses attached to these 12 cases are, alcoholism 3, syphilis 1, scrofula 1, tuberculosis 1, none 6—total 12.

Two cases, Nos. 8 and 10, had each 3 relapses, i. e., new attacks of erysipelas returning after a complete disappearance of the eruption, from a too early discontinuance of the drug. Counting the relapses as so many cases, we have 16 cases, with 118 days as the sum of their duration, which gives 7⅜ days as the mean duration of each case. Five cases, Nos. 5, 6, 7, 11 and 12, had a shorter duration.

Observations.

Case 1.—Extensive syphilitic caries and necrosis of right shoulder; intercurrent traumatic, erratic erysipelas; abscess of left side; syphilitic cephalæa. Cured.

April 15th—*Antecedents.*—This man, aged 44 years, entered my ward on March 5th, 1874, for an extensive caries and necrosis of right shoulder dating back four years. He has had syphilis in former days; has suffered for the last two months from a cephalæa, which nothing has relieved. Since his admittance, he has been taking 20 grains iodide potassium 3 times daily. His headache is gone and shoulder improving.

Day before yesterday (13th) erysipelas having broken out in the ward, I advised him to leave and come back again in a few days, when the disease would have disappeared. I feared he might catch it, which would be serious on account of the extent of the injury and his bad state of health. He left that day but came back the next morning (14th), with the intention of remaining in the hospital. I again warned him against exposing himself to the exanthema, but he insisted upon remaining.

Present Condition.—This morning he has an extensive erysipelas of right shoulder, arm, and corresponding half of back at its scapular region. The arm is very much swollen and painful from the shoulder down to the hand inclusively. The erysipelatous parts are covered with phlyctænæ from the size of a small pea to that of a twenty-five cent piece. Pulse 72; temperature 101° 1′. Tongue good.

℞—2 grains sulphate quinine every hour. Encircle parts with

collodion, to stop if possible the march of erysipelas. Continue iodide potassium. Diet ad libitum.

April 16th. Feels better. Exanthema fades where it first broke out and progresses in the opposite direction, in spite of the circle of collodion. A concentrated solution of tannin which had been applied to affected parts (placebo) is this day discontinued. Pulse 102; temperature 101° 1′. Tongue good; bowels regular; arm very much swollen. Continue quinine.

April 17th. Erysipelas advances on the sound parts, and is now reaching the left side of chest and base of posterior part of scalp. Swelling of arm decreasing. Pulse 72 (slow); temperature 100° 7′. Tongue good. Stop application of collodion; continue quinine and pot. iod.

April 18th. Swelling of arm going down. Erysipelas has reached left side of body and is descending. Here, over angles of 8th, 9th and 10th ribs, is a swelling, size of one's hand, longitudinal to the ribs, which seems to fluctuate; this is covered over with the eruption. Patient reports having had this lump several times. It comes and goes without anything being done. Pulse 72, slow; temperature 102° 5′. Tongue good; no appetite; bowels regular. Treatment as yesterday.

April 19th. March of erysipelas continuing. Swelling of left side dissappears. Pulse 84; temperature 103°. Tongue good. Same treatment.

April 20th. Erysipelas principally over scalp and upper portion of forehead; almost gone from the trunk. Forearm, and hand, right side, very œdematous (impediment to venous circulation). Pulse very weak; temperature 99° 6′. Bowels costive. Same treatment.

April 21st. Erysipelas over both temporal regions. Pulse 72; temperature 99° 3′. Tongue good; bowels operated upon. Same treatment.

April 22d. Erysipelas disappearing fast. Pulse 66, slow (kinick); temperature 97° 5′. Tongue good; bowels regular. ℞—2 grains sulphate quinine every 2 hours; continue syphilitic treatment.

April 23d. Small patch of erysipelas over right malar bone. Swelling of hand and forearm almost gone. Pulse 60; temperature 96° 8′. Take quinine every 3 hours; keep hand elevated.

April 24th. Patch of erysipelas over right malar bone. size of

a twenty-five cent piece. Pulse 68; temperature 97° 5′. Tongue very good; patient much better. Continue.

April 25th. Patch of erysipelas over right malar bone slowly disappearing. Pulse 68, weak; temperature 97° 2′. ℞—Tinct. cinch. comp., ℥vj; ferri citratis, ʒj. ℳ. S. Tablespoonful 3 times daily. Continue potassi iodidi.

April 26th. Improving. Pulse 72; temperature 98. Same treatment.

April 27th. Right arm still swollen and cold. This swelling came after the disappearance of the erysipelas on this limb. Pulse 78; temperature 101° 1′. Same treatment.

April 28th. Pulse 74; temperature 99° 3′.

April 29th. All traces of erysipelas gone. Pulse 86; temperature 99°. Tongue good. Treatment same. Duration of exanthema 14 days; syphilitic lesions improving.

Remarks.—My present intentions being to write on erysipelas, I here stop my observations in this case. The reader will at once see that the two affections traveled side by side without seemingly influencing each other. I have said nothing of the nature of the lesions of the right shoulder, from the fact that I did not notice any change in these parts which could have been attributed to the effects of the exanthema. Both treatments—internal for the erysipelas, and internal and external for the syphilitic diathesis—were kept up during the 14 days that the eruption lasted. No serious symptom of any kind showed itself during this lapse of time, although the patient was in a very bad state of health from a long continued (4 years) disease.

I will here state that the threatened abscess of the left side did come and go, without any special treatment, as it is reported by the patient to have done, on several former occasions. Twenty-four hours after all traces of erysipelas had disappeared, i. e., when the patient was cured, and several days after the disappearance of the eruption from the left side of body, the tumor again reappeared. This time it fluctuated and had finally to be opened. What was its origin I know not. I suspect a caries of one of the ribs, but my probe could discover none. At all events, while the erysipelas lasted, the lesions of the right shoulder and the general health, in a syphilitic point of view, nevertheless improved. The abscess, as proven above, depended on this diathesis, and was not caused by the erysipelas.

This patient is to-day (June 24th) cured, and will leave the hospital at the end of the month.

Now, to what is due the mildness of this erysipelas in a patient with such a dilapidated constitution? Is it not rational to think that it is due to the treatment instituted?

Case 2.—Traumatic erysipelas of right hand. Cured.

March 31st, 1874. James Rooney, aet. 28 years, native of England, in America 3 years, stonecutter. Entered my ward on the 27th of March (erysipelas was then in the ward), for necrosis of some of the bones of the right hand, the result of an accident produced by a circular saw some two months previous. Yesterday, at about 2 p. m., he was suddenly taken with a "strong chill, lasting about 3 hours" (sic.), "followed by fever."

Present Condition.—Pulse 72; temperature 99° 5. Commencing erysipelas at seat of injury; wounds look bad. Previous to this the injured parts looked well. Bowels regular; patient emaciated: this he reports as the consequence of his injuries, as previously he enjoyed good health. Removed another sequestrum.

℞—Quiniæ sulphatis, 2 grains every hour Patient not to be disturbed when asleep. Charpie l. d.

April 1st. Pulse 116; temperature 105° 8'. Erysipelas has extended to the whole surface of the hand and is progressing up the forearm. Along the dorsal surface of the latter, reaching up almost to the elbow, is an irregular reddish line of angioleucitis. Local heat great; bowels regular; tongue pointed and dry. No pains of any kind at either hepatic or other regions. Continue quinine. Tinct. arnica and water *aa* locally. Above elbow, arm encircled with collodion to check, if possible, the march of the exanthema.

April 2d. Pulse 80; temperature 101° 1'. Greatly improved. Erysipelas seems stationary. Extracted one piece of bone from first metacarpal. Continue treatment.

April 3d. Pulse 90; temperature 103° 6'. Erysipelas stationary; has not overstepped the band of collodion. Tongue pointed and reddish; bowels regular. Continue.

April 4th. Pulse 94; temperature 102° 5'. Tongue pointed and good. Threatened abscess of dorsal surfaces of hand and wrist. A few small pieces of bone come out with the dressing. Erysipelas has ascended above the band of collodion. Same treatment continued.

April 5th. Pulse 84, slow; temperature 101° 3′. Tongue good. Abscess has opened and discharged pus through one of the wounds. Erysipelas fading. Continue.

April 6th. Pulse 96; temperature 103°. Tongue pointed, with tip and edges red. Erysipelas ascending the arm; phlegmonous inflammation of hand. Extracted a few spiculæ of bones; wounds look bad. Continue quinine; stop collodion.

April 7th. Pulse 84; temperature 99° 7′. Crepitation of necrosed bones being very distinct, suppuration abundant and unhealthy, the removal of the former is decided upon. Patient is chloroformed; Esmarch's method employed. The necrosis involves most of the bones of the wrist. The index finger is amputated at its metacarpo-phalangeal articulation; a portion of its metacarpal bone, at carpal extremity, is resected; metacarpo-phalangeal articulation of middle finger crepitates; ulna at radio-carpal articulation partially dislocated. After the operation 3 drainage tubes are placed; two perforate the wrist, and one lies longitudinally over metacarpal space of index finger. The operation lasted 40 minutes and was bloodless. Erysipelas is fading.

℞—Sulphate morphine (q. s.) to relieve pain. Continue quinine; continued irrigation with carbolic acid (ʒi to Oj) water. Best diet.

April 8th. Pulse 80; temperature 100° 4′. Tongue good; erysipelas disappearing; patient doing very well. Same treatment.

April 9th. Pulse 72; temperature 99°. Doing well; bowels costive. Continue quinine and continued irrigation. Castor oil ℥j to be taken in the morning.

April 11th. Pulse 70; temperature 99°. All traces of erysipelas have disappeared.

℞—Tinct. cinch. comp. ℥vj, ferri cit. ʒi. ℥. Tablespoonful 3 times daily.

Duration 11 days.

This patient is still in my ward, but his hand is saved, his final cure being but a question of time. From the critical condition of this hand at the time the erysipelas broke out, I had reasons to apprehend a serious result. Its (the erysipelas) effect was to rouse up a chronic inflammation to an active one, and force on my part an interference which I would certainly have delayed until the eruption had disappeared. This was a gain of time. I operated while the exanthema existed, and no recrudes-

cence occurred. But the administration of quinine was kept up regularly, and to it is this no doubt due, as also the weakness of the traumatic fever subsequent to the operation.

As will be seen, I thought at one time I was about having a success in the arrest of the erysipelas by the local application of collodion, but it was a delusive hope of only 48 hours.

Case 3. Traumatic erysipelas. Sulphate quinine. Cured.

April 21st. Albino M. Peralta, act. 40 years, baker, entered my ward April 19th, 1874, suffering from a fistule of the anus. He was operated upon on day of admittance, by incision. Last night he had fever, and to-day an erysipelas exists at seat of injury.

Present Condition.—Pulse 102; temperature 104°. Diffused and spreading inflammation of the skin around the seat of wound. Patient has no appetite. Headache.

R—Sulph. quinine 2 grains every hour.

Evening. Pulse 100; temperature 104° 3′.

April 22d. Pulse 90; temperature 102° 5′. Inflammation of skin continues to spread in all directions. Tongue furred; headache; no appetite. Continue quinine.

Evening. Pulse 100; temperature 104° 7′.

April 23d. Pulse 92; temperature 103° 2′. Erysipelas still progressing. Patient had no sleep last night. Tongue swollen and thick, furred in the centre, red at edges. Same treatment.

Evening. Pulse 92; temperature 104°.

April 24th—Evening. Pulse 90; temperature 103° 2′. Patient better. Inflammation of skin disappearing; erysipelatous parts covered with phlyctenæ. Continue quinine.

April 25th. Pulse 80; temperature 101° 4′. Erysipelas disappearing. Patient better. Liquid from phlyctenæ examined under the microscope and seen to be an exudation of white blood corpuscles. Continue quinine.

Evening. Pulse 90; temperature 100° 7′.

April 26th. Pulse 76; temperature 100° 1′. Exanthema still disappearing. Tongue red. Same treatment.

Evening. Pulse 100; temperature 104°. Patient not well this evening. Pulse strong and frequent.

April 27th. Pulse 74; temperature 100° 7′. Feels much better. Erysipelas fades where it first showed itself, and descends in an opposite direction.

Evening. Pulse 86; temperature 102° 2′. Continue quinine.

May 1st, Pulse 68; temperature 98° 2 . Bowels costive; inflammation of skin descends along left leg; patient otherwise well. ℞—Pil. cath. comp. No. 4. S. 2 at once; others 4 hours after if not purged.

Evening. Pulse 80; temperature 102° 2′.

May 2d. Pulse 68; temperature 98° 2′. Erysipelas has reached the knee and is fading. Continue quinine.

May 4th. Pulse 68; temperature 97° 7′. Exanthema gone. ℞—2 grains quinine every 2 hours.

May 5th. Both constitutional and local symptoms have disappeared. Patient weak. ℞—Sulph. quinine 2 grains 3 times daily.

May 9th. Patient cured of his erysipelas and almost cured of his fistule is, though weak and anæmic, at his request discharged. ℞—Ferrated cinchona wine.

Duration 13 days.

Remarks.—In favor of the theory which considers erysipelas as the result of a transudation of the white corpuscles through the parietes of the blood-vessels, we have the microscopic examination of the 25th April, when the liquid contained in the phlyctenæ was seen to be composed of white corpuscles. No amœboid movements were seen. We account for their absence, when we remember that these corpuscles were not, when removed, in their proper channels, and consequently must have undergone changes affecting their ordinary movement.

The exanthema was of a light inflammatory type. Its contagion is here plainly seen. A case in the adjoining bed, with the same surgeon, students and nurse, instruments, &c., attending on both. For what we know the same basin and sponge might have been used for each patient. Its incubation was of 48 hours duration; its starting point the wound. Fever most probably preceded the eruption, setting in with a high temperature, which reached its acme on the evening of the 2d day, with a morning remission, after which defervescence commenced. The evening rise and morning fall were well marked, until the total disappearance of the eruption, when the ascents ceased. No premonitory chill ushered in this erysipelas. No gastric symptoms accompanied it. Effects of quinine, dizziness, etc., but moderately marked, though the patient, the first 2 or 3 days, took regularly 2 grains every hour.

Case 4.—Idiopathic erysipelas of head and face. Alcoholism-Cured.

Thomas Flemming, aet. 33 years, native of Ireland, laborer, entered ward 3, Charity Hospital, May 3d, 1872.

May 3d—*Antecedents.*—This man came here on foot. He is an alcoholic. Is unable to tell when he was first taken sick, but thinks his sickness dates back 5 or 6 days.

Present State.—The swollen condition of his head and face attracted my attention These parts were œdematous, swollen, red, sensitive to the touch, with a high temperature. There existed no injury of the head. The patient thought the swelling was caused by poisonous vines, of which there were many where he had been at work. I diagnosed an "*idiopathic erysipelas.*"

His breath was offensive; mind clear; temperature very high, 107° 2′; pulse 98, regular. Circumference of head 25 inches.

℞—Quinine 2 grains every hour; sulph. morphine or hydt. chloral q. s. at bed-time to procure sleep. Nourishment ad libitum. Rest in bed.

May 9th. Erysipelas increased for several days, then seemed to decrease, but to-day there exists a recrudescence of the exanthema on the right cheek, with high temperature (104°), and rapid pulse, (104). Bowels constipated. His eyes were closed by the tumefaction of the lids, and the conjunctivæ blood-shot.

℞—Continue treatment; purgatives.

May 19th. Up to this day the symptoms of alcoholism have been more or less marked, increasing by night. Conjunctivæ, up to about the 15th day of disease, being often blood-shot. The tongue at the height of the sickness dry, red and cracked. Delirium was so intense, that for several days and nights he had to be strapped to his bed. Costiveness very great, for which active purgatives were freely ordered. In the meanwhile, erysipelas followed suit to these symptoms—one day better, the next worse. To-day it has disappeared entirely, the fever is abated, and the circumference of the head has fallen to 22 inches.

Stop quinine. Comp. tinct. cinchona by tablespoonful 3 times daily. Best nourishment.

Subsequent to this; secondary (metastatic?) abscesses formed under the scalp; but these not being the subject of this paper, suffice it to say that, from this day, all symptoms of erysipelas

disappeared, and that the man left the hospital cured on the 15th day of June, 1872.

Duration of erysipelas 16 days.

Résumé.—An idiopathic erysipelas of head and face, with bilious complication, as evinced by the saburral state of the tongue. Subsequent to this, well marked symptoms of alcoholism set in, as epiphenomena, which, for a time being, overruled those of the erysipelas, and were treated by sulph. morphine, as much as one grain in the night, and hydrate of chloral which, on one occasion, was given in a ʒij dose. As the patient improved, these doses were diminished, and finally the medicines stopped.

Sulphate quinine in 2 grains doses every hour, as an antizymotic, was prescribed against the erysipelas. The bilious state of the primæ viæ was combatted by appropriate purgatives—calomel and bicarb. soda, castor oil, and the neutral salts. These acting besides as a derivative of the cerebral circulation. No local applications.

Case 5.—Thos. Conway, aet. 42 years, Irishman, laborer, entered my ward April 16th, 1872. Discharged cured, May 7th, 1872. Diagnosis—traumatic erysipelas of head and face. Entered hospital on fifth day of disease. On first day of treatment, sixth of sickness, temperature 104° 9′; 2d day, 104° 5′; 3d day, 104° 4′. On the 4th day after admittance, he was without fever. For the first three days he was delirious at night. Treatment consisted in 1 grain doses of sulphate of quinine every hour (patient not to be disturbed when asleep) and narcotics at night. On the 20th he took a dose of castor oil. From this day all treatment ceases. On April 24th abscess of superior right eyelid lanced.

On day of admittance, and the following 3 or 4 days, his breath was of a peculiarly offensive smell. He had a diarrhœa, for which no treatment was instituted. He could not tell how the disease commenced. He is an alcoholic.

Erysipelas cured after 4 days of treatment.

Case 6.—Ricardo Barbaso, Mexican, aet. 30 years, entered May 5th, 1873, for scrofulous necrosis—intercurrent traumatic erysipelas. For the diathesis, cod-liver oil and comp. tinct. cinch. aa, were prescribed, and for the erysipelas 2 grains sulph. quinine every hour. On the 4th day the latter was cured.

Duration 4 days.

Case 7.—Traumatic erysipelas. Peter Fahey, aet. 36 years, entered ward 8, Charity Hospital, April 20th, 1874, for a stricture of rectum. On May 1st, subsequent to manipulations for gradual dilatation of stricture, an erysipelas of anus broke out which, on the 3d had reached the scrotum, where an abscess of its cellular tissue had to be lanced on the 7th. He was put on the quinine treatment, 2 grains every hour, then 3 times daily. On the 9th, all traces of erysipelas had disappeared, and on the 11th quinine was stopped. Patient recovered.

Duration 6 days.

Case 8.—Traumatic erysipelas, complicated with alcoholism.

John Donovan, aet. 25 years, Irish, sailor, entered ward 8, April 15th, 1874. Discharged, on his demand, May 14th, 1874. This man was an alcoholic. When he entered my ward, his face and head were very much swollen from a traumatic(?) erysipelas. We supposed it to be of a traumatic origin from the fact that two days after his admittance a small wound of the scalp was discovered. Delirium at night during the first 3–4 days, which necessitated the administration of morphine. He could not say when he was first taken sick. He was put on the usual quinine treatment, two grains every hour, then every two hours, and finally 3 times daily. On April 20th, 10 grains each calomel and bicarb. soda were successfully prescribed for a constipation accompanied with a bilious tongue. On the 22d, an abscess of the right upper eyelid was lanced. There being then no more traces of erysipelas quinine was stopped, but had to be administered two days later (24th), for a relapse of the exanthema. May 1st—appetite being wanting, pulse small and weak, comp. tinct. cinch. (℥ss. 3 times daily) was ordered. May 5th—lanced abscess on left side of lower jaw, where no traces of erysipelas had existed. This shows the similarity between this disease and pyæmia, as regards the formation of metastatic abscesses. May 11th—all traces of erysipelas having again disappeared since 3–4 days, after having attacked different portions of the face and head, general health being ameliorated, quinine was again stopped. Two days later, a third attack of the exanthema, milder than the preceding one, quinine again prescribed. When he left on the 14th (to go to Marine Hospital), a trace of erysipelas still existed at the root of the nose and adjacent parts.

This case shows the necessity of continuing the quinine treat-

ment several days after all traces of the erysipelas have disappeared. The first attack was cured in less than 7 days. The second, is of an erratic and mild type, and lasted 14 days. When he left, he bore a trace of the 3d attack, which had commenced 24 hours previously. Despite the symptoms of alcoholism, especially marked at night, this case proved a mild one.

Case 9.—Traumatic erysipelas. Cured.

Mary Newes, æt. 17 yrs, Ward 36, Charity Hospital. Through the courtesy of my colleague, Dr. Alexander Hart, I was asked to operate on this young girl on the 12th of May, 1874. The following day she had fever, preceded by a chill, and followed by an erysipelas at the seat of injury. The operation was long, and necessitated the use of a large amount of chloroform, which caused an irritability of the stomach.

May 13th. Erysipelatous inflammation around seat of wound. Irritable stomach.

℞—2 grains sulph. quinine every hour, when not asleep.

May 14th. Erysipelas increased, accompanied with irritable stomach and phlyctenæ. No medicine could be retained. Continue quinine. Carbolic acid wash ʒj to Oj., l. d.

May 15th. Erysipelas still progresses. Irritability of stomach continues; rejects all that she takes. Continue quinine and carbolic acid wash. ℞—Sulph. morphine q. s., to quiet stomach.

May 18th. Erysipelas descends along the leg. Irritable stomach continues. Costiveness. Pulse small and weak. Tongue red and dry at centre, white at the edges. Irritability of stomach prevents the injestion of food or medicines.

℞—Pil. cath. comp. No. 4, to be followed by salt and water enema if necessary. Morphiæ sulph. grij, into 12 papers. S. One p. r. n., to quiet stomach. Continue quinine. Tinct. cinch. comp. ʒss 3 times daily. Carbolic wash, l. d.

May 19th. Erysipelas descends along the leg. Bowels costive. Stomach is so irritable that nothing is retained. ℞—Hypodermic injection of sulph morphiæ (½ grain) at epigastric region. Comp. tinct. cinch. and carbolic acid wash l.d., as before. Salt and water enema. Discontinue quinine.

May 21st. Tongue clean. Stomach no longer irritable. Erysipelas has reached the knee. Patient craves for acids. Continue comp. tinct. cinch. and local treatment to wound.

May 25th. Exanthema has reached the foot. Found patient eating ham and mustard.

Continue the same treatment.

May 27th. Foot œdematous. No more erysipelas. Threatening abscess on dorsal surface of foot. Same treatment. Poultice to foot.

May 28th. The most pointing part of the swelling lanced. A serous liquid escaped. Same treatment.

May 29th. Foot doing well. Furfuraceous desquamation of those parts of the skin attacked by the erysipelas.

Remarks.—This girl was considered by many as a "gone case." Except the sick stomach, I do not see that any troublesome symptoms accompanied the erysipelas. But for the gastric irritability, caused by the chloroform, which prevented the ingestion of drugs, the exanthema would have ended sooner. At no time did my student, Mr. Deslattes, or myself ever doubt a successful result.

Duration 14 days.

Case 10. Erratic traumatic erysipelas of head and face recurring three times. Cured.

Laurent Duchenne, æt. 41, Frenchman, milkman. Entered Charity Hospital, February 21st, 1874. Discharged cured, May 17th, 1874.

March 12th—*Antecedents*—This man entered my ward on the 21st of February for an extensive injury of the head. While driving his cart, at 1 a.m., he fell, the wheel passing over his head, denuding the skull of its scalp on the anterior right side and posterior left side. Here was a lacerated wound of the scalp, semicircular in shape, 8 inches in length, below and to the left of the occipital protuberance. In front, at an inch (?) to the right of the median line, on the top of the head, was another lacerated wound of the scalp, eleven inches in length, extending from the occipital bone to the inner angle of the right eye, partially tearing off the superior lid. The whole of that side of the skull was denuded of its scalp, which hung over the right ear. At the parietal protuberance a portion of the periosteum, of a circular shape, about 2 inches in diameter, was torn off, adhering to the scalp. The supra-orbital nerve was partially lacerated.

The wounds were dressed, *secundum artem*, the posterior healing by first intention, the anterior by first and second intentions.

The wound was healing kindly when on this day erysipelas is discovered.

Present Condition.—Pulse 96; temperature 102°2′. Commencing erysipelas on right anterior side of head and right superior eyelid. No precursory chill has ushered in this exanthema. Tongue good. Appetite poor.

℞—2 grains sulph. quinine every hour. Not to be disturbed when asleep. Encircle erysipelatous patch with collodion. Continue local treatment.

March 13th. Pulse 92; temperature 101°4. An abscess of right superior eyelid has opened at inner angle of eye and runs freely. Erysipelatous inflammation about gone. Bowels regular. Continue treatment.

March 14th. Pulse 72; temperature 101°4. Doing quite well; all traces of erysipelas gone. Local treatment.

March 16th. Pulse 120; temperature 106°3′. Tongue good. Wounds look bad; will probably have erysipelas. No operation from bowels. ℞—Pil. cath. comp. No. 8. S. 4 at once. If not purged by morning, give the other four. Continue local treatment.

March 17th. Pulse 86; temperature 100°. Very light erysipelas at seat of injury, at occipital region. Three operations from bowels. Took 8 pills.

March 18th. Pulse 84; temperature 100° 1′. Doing better.

March 19th. Pulse 102; temperature 101° 4′. Not very well; no appetite. Wound doing well. ℞—Tinct. cinch. comp., ℥vj, tablespoonful 3 times daily.

March 20th. Pulse 72, weak; temperature 103° 6′. Tongue saburral. No appetite. Feels weak. Erysipelas of right superior eyelid and corresponding side of head; horripilations. Continue tinct. cinch.

March 21st. Pulse 108; temperature 106° 3′. Tongue furred and trembling. Horripilations. Bowels regular. Two large phlyctenæ at erysipelatous spot on right side of forehead.

℞—2 grains quinine every hour. Continue comp. tinct. cinch.

March 22d. Pulse 108; temperature 104° 7′. Tongue cleaner. Bowels loose, 7 operations. Wound doing better. Erysipelas on left side of forehead. Horripilations. Continue medicine.

March 23d. Pulse 82; temperature 102° 2′. Much better. Erysipelas over nose and right ear. 2 grains quinine every 3 hours.

March 24th Pulse 102; temperature 104° 3′. Erysipelas on left side of face and ear. Wound better. Quinine, 2 grains every hour.

March 25th. Pulse 90; temperature 96° 8′. Much better. Continue quinine.

March 28th. Pulse 78; temperature 99° 3. No more erysipelas. Stop quinine.

March 29th. Pulse 120; temperature 105° 4′. Erysipelas has again broken out on right side of forehead. Tongue furred, with a tendency to become dry. Pus of wounds unhealthy.

℞—2 grains sulph. quinine every hour. Continue local treatment.

March 30th Pulse 100; temperature 104° 3′. Erysipelas over right side of face and forehead. Continue treatment.

March 31st. Pulse 90; temperature 100° 1. Improving. Continue treatment.

April 3d. Pulse 78; temperature 96° 8′. Much better. Sulph. quinine, 2 grains every 3 hours.

April 5th. Pulse 84; temperature 99° 5′. No more erysipelas.

April 7th. Doing very well. Lanced abscess over eyelid.

April 8th: Improving. Appetite very good. Scalp adhering to bone.

April 20th. Improving rapidly.

May 8th. Leaves hospital to-day, though his wound is not entirely healed up, on account of the erysipelas which prevails here. He has now been without the distemper for over a month,

Duration 25 days.

Remarks.—By carefully reading this case one cannot fail to see the marked effects of quinine on the march of erysipelas, on the pulse, on the temperature, and the necessity of continuing the drug for several days after all traces of the exanthema have disappeared. If this precaution be not strictly adhered to, the eruption soon returns, as it did here on three different occasions. I look upon this case as a typical one, to prove the good results to be obtained from the administration of the kinick salts in this disease. The erysipelas is seen to disappear rapidly under the use of this drug, and reappear if it be too soon discontinued. The pulse and temperature are seen to fall under its use. This fall will be accounted for further on.

Case 11.—Idiopathic erysipelas of face.

William Bass, aet. 40 years, carpenter, Missourian, entered my ward on the 10th December, 1873. *Antecedents.*—Patient entered hospital for a stricture of urethra, for which external urethrotomy was performed on February 28th, 1874. On the 11th day after operation, whereas the wound of perineum was doing very well, with rosy granulations and healthy pus, as testified by my friend Dr. Castellanos, an idiopathic erysipelas of face broke out. This patient is of a tuberculous constitution.

March 10—*Present Condition.*—Pulse 120; temperature 102° 5′. Tongue dry. Did not sleep on account of pain in the face. Erysipelas over the left malar bone and the nose.

℞—2 grains quinine every hour.

March 11th. Pulse 108; temperature 102°. Tongue good. Bowels loose. Passed a restless night. Erysipelas disappearing on one side of the face, commencing on the other.

℞—Quin. sulph. ℈ijss. acidi sulph. q. s.; tinct. opii ʒij; aq. ʒxii. ℳ. S.—Tablespoonful every hour.

March 12th. Pulse 108; temperature 101° 3′. Tongue very good. Erysipelas disappearing. Continue medicine.

March 13th. Pulse 114, very small and weak; temperature 98° 2′; respiration 20, normal. Profuse hemorrhage from lungs yesterday at 4 p. m., for which 20 drops muriated tinct. of iron, every hour, was prescribed by the assistant house surgeon. The erysipelas has disappeared. Tongue moist and anæmic. Perineal wound doing well.

℞—20 drops Tinct. iron to-night ℞—Olei morrhuæ, tinct. cinch. comp. aa: tablespoonful 3 times daily.

March 14th. Pulse 116, weak, rapid, small; temperature 101° 8′. Tongue good. Pains in both sides of face (probably a return of the erysipelas). Wound of perineum and scrotum does not look well. Stop medicines. Take 2 grains quinine every hour.

March 15th. In statu quo. Pulse 120; temperature 103° 2′. Continue quinine.

March 16th. Better. Pulse 104; temperature 100° 7′. ℞—Olei Morrhuæ, tinct. cinch. comp. aa. By tablespoonful 3 times daily. From this day no more fears of erysipelas.

Duration 4 days.

Remarks.—The appearance of an idiopathic erysipelas of the face, where not a scratch existed, in one with an extensive wound of perineum and scrotum (a portion of scrotum had gangrened away), shows that the cause of erysipelas is not dependent on

wounds. When it is associated with a wound it comes in as an epiphenomenon, and should be treated as such. It may be so serious as to become, for a time being, the principal affection, and in fact cause death, as was the case in the following observation.

Case 12.—Traumatic erysipelas of foot. Ataxic symptoms. Death. Necroscopy.

April 1st—*Antecedents.*—Charles Hoffmann, aet. 27 years, sailor, entered my ward, bed 14, March 24th, 1874. Eight days previous to admittance, cut his foot with an axe. Hemorrhage copious at time of accident. The dressing was removed for the first time the day after his admittance to the hospital. No union of wound, which was very dirty with blood and soot (the latter had been applied by the patient at time of accident). The incision was on the track of the dorsal artery of the foot, crossing it very obliquely at the first interosseous space where, at the metatarso-phalangeal articulation, the artery was cut. The pulsations which were distinctly felt at the cardiac end, were absent at the distal end. A strip of plaster was loosely placed across the injury, which was about 1½ inches in length, and its lips approximated. Forty-eight hours after this dressing, a secondary hemorrhage took place. I removed the dressings, which had been placed pro tempore by the student, and no hemorrhage followed. The pulsations at the cardiac end were visible, A bit of lint folded up, placed on the track of the artery, one inch above the cut and kept in place by a strip of sticking plaster, which encircled the foot, completely stopped the pulsations below. Forty-eight hours after, though the pressure above was still kept up, pulsations had returned below. Besides a small puffiness existed at the seat of injury. A stronger pressure on the dorsal artery diminished these pulsations, but did not stop them. It was evident that a communication existed at the distal end. This was with the plantar arch, through the communicating artery. A diffused traumatic aneurism between the latter and the dorsal arteries was forming. Pressure on both the posterior tibial and dorsal arteries, stopped the pulsations in the aneurismal sac. Compression was kept on the dorsal, and a strip of sticking plaster over the wound and aneurism. The latter being very small, might disappear by the cicatrisation of the former. Another hemorrhage took place on the following morning, March 30th. I

then ligated the dorsalis pedis, an inch above the seat of injury, scooped out the blood from the aneurismal sac, and, unable to ligate the communicating artery, which was imbedded in the first interosseous space, I made the acupressure with one of Dr. J. Y. Simpson's needles and according to his method. The bleeding was free and copious from the distal end, which necessitated the compression of the posterior tibial, by my assistant, Mr. Deslattes. Acupressure needle removed next morning. No hemorrhage. Patient anæmic.

Yesterday morning, March 31st, when I removed the acupressure needle, fever was quite high. I neglected to take the temperature and count the pulse, which previous to this little operation were normal. I did not then (yesterday) think that such a trifling operation could cause such a high traumatic fever. This morning the cause is known—erysipelas. He was delirious the latter part of the night. Took a dose of oil yesterday.

Present Condition.—Pulse 109; temperature 105° 4. Tongue pointed, moist and anæmic. Thirst great. Oil operated twice. At seat of injury commencing erysipelas, spreading in all directions. Wound looks bad. No hemorrhage. Local heat very high. No pains at either hepatic or other regions.

℞—Parts surrounded by collodion, to prevent, if possible, the exanthema from spreading. 2 grains sulph. quinine every hour. Tinct. arnica and water aa, loco-dolenti.

April 2d. Pulse 110; temperature 106°5′. Tongue moist and anæmic. Horripilations. Bowels loose. Thirst very great. Erysipelas disappearing. ℞—Continue medicine. ⅛ grain sulph. morphine every 3 hours.

April 3d. Pulse 108, small and weak; temperature 104°3. Tongue pointed and very dirty. Bowels checked. Wound looks healthier. Eryripelas almost gone. Delirium during night.

℞—Continue quinine. Ferrated comp. tinct. cinch. by tablespoonful every hour.

April 4th. Pulse 144, weak, rapid; temperature 105°4′; respiration 60. Tongue furred, white, and dry. Hiccough since yesterday. Delirium. Wound dry. Erysipelas gone. No operation from bowels since yesterday morning. Micturates freely. ℞—Ammoniæ carb. ʒj, potassii brom. ℥ss, aquæ ℥vj. ℿ. S. Tablespoonful every hour. ℞—Salt and water enema at once. Water and tinct. arnica to wound.

Evening. In statu quo. Carphologia. ℞—½ grain sulph.

morphine every three hours, to procure sleep. 20 grains carb. ammonia every three hours. Salt and water enema at once.

April 5th. Died at 4 a.m., quietly.

Duration of erysipelas 5 days.

Necroscopy.—6 hours after death. Body anæmic; muscles well developed, exsanguineous. *Cranial Cavity.*—Except a slight congestion of the blood-vessels, and especially those of the pia mater, the contents of the skull were normal. *Thorax.—Lungs*, two or three small pleuritic adhesions; otherwise perfectly healthy. *Heart*, normal; contained fibrinous (yellow) heart clots in all its cavities. Two typical "*plaques laiteuses*," about size of a 25 cent piece, on its outer surface, traces of former pericarditis. *Pericardium*, healthy. *Abdomen.—Liver*, seemed normal. *Gall Bladder*, contracted down; contained but a small quantity of dark green bile. *Spleen*, slightly hypertrophied. *Stomach and Bowels*, were not examined, as they looked healthy, the latter filled with gases. *Pancreas*, normal. *Kidneys*, seemed hypertrophied; 3 or 4 sub-serous ecchymoess; otherwise healthy.

Résume.—Incised wound of the foot. Sudden elevation of temperature. Erysipelas. Looseness of bowels. Ataxia. Delirium. Hiccough. Death. Treatment for erysipelas: 2 grains sulph. quinine every hour; collodion and water and tinct. arnica l.d.; carb. ammonia; brom. potassium and sulph. morphine. Enemas p. r. n. For injury: Purgatives p. r. n.; compression, ligature and acupressure of vessels; co-aptation of lips of wound. Post-mortem: negative.

Remarks.—The sudden rise of the temperature in this case, reaching 105°4′ in 24 hours, was by itself sufficient to make the diagnosis, inasmuch that erysipelas was in the ward. At the same time the wound assumed an unhealthy appearance, with a very high local heat. Twenty-four hours after the first appearance of the eruption it faded, while a looseness of the bowels augured bad. This last symptom having been checked, was followed by adynamic symptoms, hiccough, and a suppression of the exanthema, which rendered the case a desperate one. These symptoms soon increased, and death, preceded by complete delirium and carphologia, followed before the completion of the sixth day.

This sudden disappearance of erysipelas, with such alarming brain symptoms, is what is sometimes called a metastasis or translation of the disease to the brain. Besides, that these

words do not give us a clue to the manner in which this sudden change takes place, we have seen that the results of the post mortem have been most unsatisfactory. It is certainly not a very slight congestion of the vessels of the brain, and especially those of the pia-mater, nor the heart clots, that have caused death. To be candid, let us admit that, once more, death has occurred from erysipelas, with our inability to account for it, and without any satisfactory result from the necroscopy.

The treatment has been the same in this case as in the preceding ones, which were all cured. Quinine formed the base of it, being given in small and repeated doses. This drug has been given in this disease for years back, with different explanations. It certainly seems to be of all drugs the one that has been the most patronized.

Deductions from the Preceding Observations.

If quinine has not the power of checking the march of erysipelas, or of abridging its duration, it certainly seems to be capable of mitigating its symptoms. I am not prepared to say positively that it does abridge, and in some cases cut short the disease, but observations do lead to this conclusion. Dr. Perroud* asserts that it does. He reports five cases in which the exanthema lasted from four to eight days after the administration of the drug. But at the time he made his experiments the disease did not reign epidemically in his wards, as it did in mine. For five months I have had the distemper reigning epidemically in my wards, so much so, that on many occasions, when practicable, I dared not use the knife. For three months previously pyæmia was of frequent occurrence.

I am satisfied that quinine is powerful for good in this disease, and will continue to believe it until proved otherwise. I am always ready to change or alter my opinions according to *facts*, the result of strict and impartial observation at the bedside. I hope that those of my confrères who may feel interested in this subject will pursue its study further, and permit us to hear from them.

When we think how serious and deadly this affection is when it becomes epidemic, and how powerless then is our therapeutics, we should try by all means to find a powerful treatment against

* *Loc., cit.*

its ravages. See how lethiferous was the epidemic which raged in Louisville and its hospitals in 1844–5–6.

All my cases but one have shown mild symptoms, in spite of the bad state of health of some of the patients, and the diatheses under which they labored—alcoholism, tuberculosis, scrofula, syphilis, etc.

As stated previously, erysipelas prevailed throughout the winter, in one or more wards of the hospital. Some of my colleagues have had to contend with deep seated abscesses and other alarming symptoms. But for Case 12, which terminated fatally, I would have been able to advance the probability that, with the quinine treatment erysipelas will not terminate fatally. But that treatment is the best which gives the best results. The future will decide. For the present, we have good grounds to try this modus curandi.

If we consult the works of the different authors, old and recent, on the treatment of this disease, we see almost every one, if not all, for one reason or another, recommend the use of quinine, without (except Dr. Perroud) stating what its modus operandi is.

It will be seen that I gave to my patients 2 grains, sometimes less, of quinine every hour or two, fed them ad libitum on the best diet, and yet cured them with little or no serious symptoms. What a difference with the views of the old school, and of those who practised some 30 years ago, when the mildest treatment was a blood-letting of some sixteen ounces or more, a powerful purge, and a strict diet! "And yet," says an author, "*the patients would die in spite of our doings, although we might have bled* 2, 3, and 4 *times.*" Were our predecessors to rise from their graves, they, like Rip Van Winkle, would be astonished at the change that has taken place, and wonder at the sight of their lancets rusted from disuse.

Action of Peruvian Bark on the Nervous System.—Mr. Briquet, one of the many who have made a special study of the action of Peruvian bark, asserts and proves, from the many experiments he has made on animals, and the numerous observations gathered from both healthy and sick persons, that "the alkaloids of bark have a direct and almost instantaneous action on the cerebro-spinal axis."

He divides his experiments into two periods, according to the doses given, and thus enables us to account for the apparently contradictory results obtained daily by practitioners.

In the first period, if the salt be given in small doses, the cerebral functions are excited; in the second, if these doses be kept up and increased, they have a sedative effect. From his experiments on animals, he proves that the period of excitement is in direct ratio to the rapidity with which the quinine salt has reached the brain. The excitement is almost always of short duration.

The second or sedative period, on the contrary, acts in direct ratio to the slowness with which the drug reaches the brain, as, for instance, when it is given by the stomach progressively and gradually. In this case, the sedative period is as long as the absorption is slow.

Observation has proven, that the effects are the same on man as those obtained by experimenting on animals. Quinine given to man, in small doses, produces an excitement of short duration; but when a large quantity is given, in small and repeated doses, it has a sedative effect of long duration.

Eulenburg has made some very interesting experiments with sulphate quinine. His object was to find out what portion of the cerebro-spinal axis was first acted upon by the drug (Archiv. fur Anatomie, etc., 1865, iv., p. 423). He considers himself authorized to conclude that, sulphate of quinine first acts on the spinal marrow, where it paralyzes the centres of reflex action. Secondly on the brain, where the centres of sensibility and voluntary movements are paralyzed. He comes to this conclusion from the following fact: A frog, poisoned by sulphate of quinine, is, in the course of 10 or 20 minutes, insensible to physical and mechanical excitements. It still, however, possesses sensibility and motility, for if the animal be placed on its back, it will attempt to turn over on its belly. Quinine seems to have no action on the nerves, but if applied to a freshly cut muscular surface, it causes a contraction, whereas if the muscle be plunged in a solution of sulphate of quinine, it soon loses its contractility.

Action of Peruvian Bark on the Circulatory System.—Here again the action of bark is twofold and in apparent contradiction. Quinine in small doses and long intervals (3 to 6 grains in several doses) gives energy to the beatings of the heart, increases its force and the frequency of the pulse.

But given in large doses and progressively (i. e., from 20 to 60 grains in the 24 hours), quinine has a marked sedative effect on

the cardio-vascular system, as shown by a marked slowness and weakness in the beatings of the heart and pulse.

Besides this hyposthenic action on the circular system, quinine in large doses also possesses a depressive influence on calorification. While it diminishes the force and frequency of the pulse, it lowers to a marked degree the temperature of the skin. According to Dr. Briquet, this refrigeration is the direct result of the abatement of the circulation, and is always in proportion to it.

Such are the effects which I have obtained from the administration of quinine. I gave it as soon as the first febrile symptoms showed themselves, and kept up its use during the febrile stage. By its continued administration, the pulse and temperature were often seen to fall considerably, and rise again if the drug was too soon discontinued.

Quinine as a Prophplactic of Erpsipelas.—The good results which I obtained from this drug in the treatment of erysipelas, the explanations set forth, as its modus operandi, led me to try it as a prophylactic. From the following facts I think we can consider it, until otherwise proved, as a preventative of that erysipelas which so often complicates wounds.

"When the disease is epidemic," says Dr. Gross, "it often shows itself within a very short time after the receipt of an injury, however slight or insignificant. Under such circumstances, indeed, I have, as already stated, known it to follow upon the most trivial wound,....."

I mentioned above, that the distemper raged in my wards for five months, during which time I dared not operate.

Case 3 shows that the patient was operated upon on the 19th, and on the morning of the 21st he had erysipelas at seat of injury. On that day, the 21st, I had to operate upon a patient for a fistule of the left nates. I had then three cases of the exanthema in the adjoining beds. It was then that I first prescribed quinine as a prophylactic, and with the following result:

Joseph Sanders, aet. 47 years, Canadian, laborer, entered my ward April 20th, 1874. Discharged, cured, May 8th, 1874. Diagnosis—Fistule of left nates. Treatment—Incision of fistule on April 21st; quinine as a prophylactic (2 grains every 2 hours, then 3 times daily), there being erysipelas in the ward.

Duration 17 days.

He was therefore 17 days in an infected locality; his wound

progressed satisfactorily, and he was discharged cured without having had the distemper.

From this day I gave quinine, in 2 grains doses 3 times daily, to all the patients upon whom I operated, and have not had any new cases of erysipelas among them. One patient (vide Case 7), to whom I did not give it, not thinking it necessary, was taken sick with the disease on May 1st, 1874.

It is to be hoped that future observations will prove quinine to be a prophylactic against erysipelas.

Before dropping my pen, I wish here to return my thanks to my friend, Mr. J. L. Deslattes, Resident Student Charity Hospital, for the valuable services he has rendered me, and for the promptness and accuracy he has always shown in observing my patients during my absence and in gathering information.

28 Conti Street, New Orleans, July, 1874.